

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A transparent substrate, comprising:
~~a glass substrate and provided with a thin-film stack including at least three a plurality of functional layers, the thin-film stack comprising: functional substacks of layers, each of the functional substacks having a silver-based functional layer, and at least one of the functional substacks having a structure including~~
a lower dielectric layer,
the silver-based functional layer,
an upper dielectric layer, and
an upper layer of Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN, wherein
the thin-film stack has a resistance $R < 1.5 \Omega$ per square and the transparent substrate is transformable via a heat treatment at a temperature of at least 500°C.

Claim 2 (Previously Presented): The transparent substrate as claimed in claim 1, wherein the transparent substrate has a light transmission $T_L \geq 70\%$.

Claim 3 (Previously Presented): The transparent substrate as claimed in claim 1, wherein the transparent substrate has a light transmission $T_L \geq 40\%$.

Claim 4 (Previously Presented): The transparent substrate as claimed in claim 1, wherein the transparent substrate has a light transmission $T_L \geq 40\%$ and a resistance $R \leq 1.1\Omega$ per square.

Claim 5 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the thin-film stack includes at least four functional substacks of layers, each of the functional substacks including a silver-based functional layer layers.

Claim 6 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the total thickness of the silver-based functional layers in the thin-film stack is greater than or equal to 25 nm.

Claim 7 (Currently Amended): The transparent substrate as claimed in claim 1, ~~further comprising an identical functional feature for each of the silver-based functional layers,~~

wherein each of the functional substacks feature associates a corresponding silver-based functional layer with at least one subjacent or superjacent layer.

Claim 8 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the silver-based functional layer of at least one of the functional substacks plurality of functional layers is located between at least one lower dielectric layer and at least one upper dielectric layer.

Claim 9 (Canceled).

Claim 10 (Previously Presented): The transparent substrate as claimed in claim 1, wherein the transparent substrate is directly coated with a layer based on Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN.

Claim 11 (Currently Amended): The transparent substrate as claimed in claim 1, wherein, in the at least one of the functional substacks functional feature, an upper absorbent metal layer is located between one of the silver-based functional layer layers and at least one upper dielectric layer.

Claim 12 (Currently Amended): The transparent substrate as claimed in claim 1, wherein, in the at least one of the functional substacks functional feature, a lower absorbent metal layer is located between at least one lower dielectric layer and one of the silver-based functional layer layers.

Claim 13 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the at least one of the functional substacks functional feature, has the following structure: ZnO/Ag/ . . . ZnO/Si₃N₄.

Claim 14 (Currently Amended): The transparent substrate as claimed in claim 13, wherein

the thin-film stack includes three silver-based functional layers,
each of the functional substacks includes one of the three silver-based functional layers, and
the thicknesses of the constituent layers of the at least one of the functional substacks functional feature of the structure: ZnO/Ag/ . . . ZnO/Si₃N₄ are: 5 to 15/10 to 17/ . . . 5 to 15/25 to 65 nm.

Claim 15 (Currently Amended): The transparent substrate as claimed in claim 13, wherein

the thin-film stack includes four silver-based functional layers,
the number of functional substacks is four, each of the functional substacks including
one of the four silver-based functional layers, and

the thicknesses of the constituent layers of the at least one of the functional substacks
~~functional feature of the~~ structure: ZnO/Ag/ . . . ZnO/Si₃N₄ are: 5 to 15/7 to 15/ . . . 5 to 15/23
to 65 nm.

Claim 16 (Currently Amended-Withdrawn): A process for manufacturing a transparent substrate comprising glass and provided with a thin-film stack, the process comprising:

depositing on the transparent substrate a thin-film stack including a plurality of functional layers,

wherein the plurality of functional layers include at least three silver-based functional layers, the thin-film stack has a resistance R < 1.5 Ω per square, and the transparent substrate is transformable via a heat treatment at a temperature of at least 500°C.

Claim 17 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein at least four silver-based functional layers are deposited on the substrate.

Claim 18 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein the total thickness of the silver-based functional layers deposited is greater than or equal to 25 nm.

Claim 19 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein at least three identical functional features of the plurality of functional layers are

deposited on the transparent substrate, each of the functional features associates a functional layer of the plurality of functional layers with at least one subjacent or superjacent layer.

Claim 20 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, for at least one of the plurality of functional layers, at least one lower dielectric layer is deposited beneath the one of the plurality of functional layers and an upper dielectric layer is deposited on the one of the plurality of functional layers.

Claim 21 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein an upper layer based on Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN is deposited on top of at least one of the plurality of functional layers.

Claim 22 (Currently Amended-Withdrawn): The process as claimed in claim 16, wherein the transparent substrate is directly coated with a layer based on Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN.

Claim 23 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, in at least one functional feature, an upper absorbent metal layer is deposited on top of one of the silver-based functional layers and beneath at least one upper dielectric layer.

Claim 24 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, in at least one functional feature, a lower absorbent metal layer is deposited on top of at least one lower dielectric layer and beneath one of the silver-based functional layers.

Claim 25 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, at least one functional feature deposited has the following structure: ZnO/Ag/ . . . ZnO/Si₃N₄.

Claim 26 (Previously Presented-Withdrawn): The process as claimed in claim 25, wherein,

the thin-film stack includes three silver-based functional layers, and
the corresponding thicknesses of the constituent layers of the at least one functional feature of structure: ZnO/Ag/ . . . ZnO/Si₃N₄ are: 5 to 15/10 to 17/ . . . 5 to 15/25 to 65 nm.

Claim 27 (Previously Presented-Withdrawn): The process as claimed in claim 25, wherein,

the thin-film stack includes four silver-based functional layers, and
the thicknesses of the constituent layers of the at least one functional feature of structure: ZnO/Ag/ . . . ZnO/Si₃N₄ are: 5 to 15/7 to 15/ . . . 5 to 15/23 to 65 nm.

Claim 28 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein functional features are deposited by passing the substrate several times through a single manufacturing device.

Claim 29 (Previously Presented-Withdrawn): The process as claimed in claim 28, wherein the thin-film stack comprises four silver-based functional layers and the functional features are deposited in pairs by passing the substrate twice through the single manufacturing device.

Claim 30 (Previously Presented-Withdrawn): The process as claimed in claim 29, wherein the thicknesses of layers of the deposited functional features are substantially identical during each of the two passes.

Claim 31 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein the transparent substrate is transformable via a heat treatment at a temperature of at least 500°C such that the resistance R of the transparent substrate is reduced by at least 10%.

Claim 32 (Currently Amended): A glazing assembly for one or more of thermal control, electromagnetic shielding, or heating, the glazing assembly comprising:

a transparent glass substrate including a thin-film stack having at least three functional substacks of layers, each of the functional substacks including of at least three a silver-based functional layer layers, and at least one of the functional substacks having a structure including

a lower dielectric layer,

the silver-based functional layer,

an upper dielectric layer, and

an upper layer of Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN, wherein

the thin-film stack has a resistance R < 1.5 Ω per square and the transparent substrate is transformable via a heat treatment at a temperature of at least 500°C.

Claim 33 (Previously Presented-Withdrawn): The transparent substrate as claimed in claim 1, wherein the transparent substrate produces, alternatively or cumulatively, thermal control, electromagnetic shielding, or heating.

Claim 34 (Previously Presented): The glazing assembly claimed in Claim 32, further comprising at least one other substrate,
wherein the glazing assembly has a selectivity ≥ 2 .

Claim 35 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the thin-film stack includes three silver-based functional layers and the total thickness of the silver-based functional layers is between 35 and 50 nm in the a thin-film stack comprising three silver based functional layers and between 28 and 64 nm in a thin-film stack comprising at least four silver-based functional layers.

Claim 36 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the silver-based functional layer of each of the plurality of functional substacks layers is located between at least one lower dielectric layer and at least one upper dielectric layer, and the dielectric layers are based on ZnO and dopeable with aluminum.

Claim 37 (Currently Amended): The transparent substrate as claimed in claim 1, wherein the silver-based functional layer of each of the plurality of functional substacks layers comprises includes an upper layer based on Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN.

Claim 38 (Currently Amended): The transparent substrate as claimed in claim 1, wherein, in each of the functional substacks functional feature, an upper absorbent metal layer based on Ti is located between one of the silver-based functional layer layers and at least one upper dielectric layer.

Claim 39 (Currently Amended): The transparent substrate as claimed in claim 1, wherein, in each of the functional substacks functional feature, a lower absorbent metal layer based on Ti is located between at least one lower dielectric layer and one of the silver-based functional layer layers.

Claim 40 (Currently Amended): The transparent substrate as claimed in claim 1, wherein each of the functional feature substacks has the following structure:
 $ZnO/Ag/Ti/ZnO/Si_3N_4$.

Claim 41 (Currently Amended): The transparent substrate as claimed in claim 40, wherein,

the thin-film stack includes three silver-based functional layers,
each of the functional substacks includes one of the three silver-based functional layers, and
the thicknesses of the constituent layers of each of the functional feature substacks of the structure: $ZnO/Ag/Ti/ZnO/Si_3N_4$ are: 5 to 15/10 to 17/0.2 to 3/5 to 15/25 to 65 nm.

Claim 42 (Currently Amended): The transparent substrate as claimed in claim 40, wherein,

the thin-film stack includes four silver-based functional layers,
the number of functional substacks is four, each of the functional substacks including one of the four silver-based functional layers, and
the thicknesses of the constituent layers of each of the functional feature substacks of the structure: $ZnO/Ag/Ti/ZnO/Si_3N_4$ are: 5 to 15/7 to 15/0.2 to 3/5 to 15/23 to 65 nm.

Claim 43 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein the total thickness of the silver-based functional layers deposited is between 35 and 50 nm in the thin-film stack comprising three silver-based functional layers and between 28 and 64 nm in a thin-film stack comprising at least four silver-based functional layers.

Claim 44 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, for each of the plurality of functional layers, a lower dielectric layer is deposited beneath each of the plurality of functional layers and an upper dielectric layer is deposited on each of the plurality of functional layers,

wherein the at least one lower dielectric layer and the upper dielectric later are based on ZnO and dopable with aluminum.

Claim 45 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein an upper layer based on Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN is deposited on top of each functional layer.

Claim 46 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, in each functional feature, an upper absorbent metal layer based on Ti is deposited on top of a corresponding silver-based functional layer and beneath an upper dielectric layer.

Claim 47 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, in each functional feature, a lower absorbent metal layer based on Ti is deposited on top of a lower dielectric layer and beneath a corresponding silver-based functional layer.

Claim 48 (Previously Presented-Withdrawn): The process as claimed in claim 16, wherein, each functional feature deposited has the following structure:

ZnO/Ag/Ti/ZnO/Si₃N₄.

Claim 49 (Previously Presented-Withdrawn): The process as claimed in claim 48, wherein, the thin-film stack includes three silver-based functional layers and the corresponding thicknesses of the constituent layers of each functional feature of structure: ZnO/Ag/Ti/ZnO/Si₃N₄ are: 5 to 15/10 to 17/0.2 to 3/5 to 15/25 to 65 nm.

Claim 50 (Previously Presented-Withdrawn): The process as claimed in claim 48, wherein the thin-film stack includes four silver-based functional layers and the thicknesses of the constituent layers of each functional feature of structure: ZnO/Ag/Ti/ZnO/Si₃N₄ are: 5 to 15/7 to 15/0.2 to 3/5 to 15/23 to 65 nm.

Claim 51 (Previously Presented-Withdrawn): The process as claimed in claim 31, wherein the resistance R of the transparent substrate is reduced by at least 15%.

Claim 52 (New): The transparent substrate as claimed in claim 1, wherein each of the functional substacks has a structure including

- a lower dielectric layer,
- the silver-based functional layer,
- an upper dielectric layer, and
- an upper layer of Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN.

Claim 53 (New): The transparent substrate as claimed in claim 1, wherein the thin-film stack includes four silver-based functional layers and the total thickness of the silver-based functional layers is between 28 and 64 nm.

Claim 54 (New): The transparent substrate as claimed in claim 32, wherein each of the functional substacks has a structure including

- a lower dielectric layer,
- the silver-based functional layer,
- an upper dielectric layer, and
- an upper layer of Si₃N₄, AlN, or a mixture of Si₃N₄ and AlN.